

15th, tug Carrington left for Port Sarnia. Cleveland, 21st, scow arrived loaded with stone, first boat since close of navigation. Sandusky, 3rd, ice breaking up; 5th, large masses moving out; 9th, first steamer arrived. Buffalo, 1st, creek and harbor free of ice. *Hudson River*.—Albany, 28th, river entirely free of ice, rose 11 feet in past 36 hours, causing considerable damage to property. *Watuppa Lake*.—Fall River, Mass, lake clear of ice throughout the month. *Lake Champlain*.—Burlington, Vt., 1st, 22nd to 25th, 28th, 31st, floating ice in lake. *Merrimac River*.—Newburyport, Mass, river and harbor free of ice throughout the month, except on the 1st, 14th, 27th, 28th, 30th, when small quantities of floating ice appeared.

High Tides.—Cape Lookcut, N. C., 14th, 15th, 26th, Fort Macon, N. C., 11th, 12th, 13th to 16th; Portsmouth, N. C., 14th,

Low Tides.—Indianola, Tex., 1st, 2nd, 10th, 11th and 12th.

TEMPERATURE OF WATER.

The *temperatures of water*, as observed in rivers and harbors, with average depth at which observations were taken, are given in the table on left side of chart No. II. At the following stations observations were not made on the dates indicated, on account of ice, at Alpena and Escanaba during entire month; Chicago, 1st, 2nd and 3rd; Detroit, 1st, 2nd, 3rd, 10th, 11th, 12th; Duluth, 1st to 13th inclusive, 22nd to end of month; Grand Haven, 1st, 2nd and 3rd; Marquette, 28th to 31st; Sandusky and Toledo 1st to 6th.

ATMOSPHERIC ELECTRICITY.

Thunder-storms were reported in the various states and territories on the following dates: Pennsylvania, 20th, 21st; New Jersey, Maryland, Virginia and West Virginia, 20th; North Carolina, 9th, 22nd; Georgia, 8th, 21st, 26th, 27th; Florida, 25th; Alabama, 17th, 21st; Mississippi, 21st, 22nd; Louisiana, 5th, 21st; Texas, 1st, 2nd, 3rd, 4th, 24th, 29th, 30th, 31st; Arkansas, 7th; Indian Territory, 29th; Tennessee, 6th, 21st, 22nd at Nashville the thunder-storm of the 21st was very severe, the heavy peals of thunder and vivid flashes of lightning, 10:10 p. m. being a marked feature of the storm; Kentucky, 7th, 8th, 21st; Ohio, 8th, 21st, 22nd; Illinois, 7th, 8th, 21st; Indiana, 7th, 8th, 12th, 17th, 21st; Missouri, 19th, 21st, 29th; Iowa and Nebraska, 29th; Kansas, 22nd, 29th.

Auroras.—Harvard College Observatory, Cambridge, Mass., looked for every clear evening, but none seen. Guttenburg, Ia., 28th, 9 p. m., diffuse light, no streamers; Independence, Ia., 16th; Gardiner, Me., 28th; Austin, Nebr., 4th; Starkey, N. Y., 11th, 20th, 24th; Milton, Pa., 11th, 7 p. m., arch extended from northeast to southwest, disappeared at 8:40 p. m.; Coalville, Utah, 30th; Tucson, Ariz., 8th; Eastport, 7th, 11:40 p. m., 8th, 3 a. m.; Newport, R. I., 4th, 11:30 p. m.; Burlington, Vt., 7th.

Telegraphic Communication interfered with by Atmospheric Electricity.—Mason, Tex., 2nd, 3rd; Davis, Tex., 1st, 2nd; Cape Hatteras, N. C., 22nd.

OPTICAL PHENOMENA.

Solar Halos were observed in the various districts on the following dates: New England, 16th, 17th, 18th, 22nd, 24th, 25th, 26th, 28th, 29th; Middle Atlantic States, 2nd, 3rd, 5th, 16th, 17th, 18th, 19th to 30th; South Atlantic States, 1st, 3rd, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 22nd, 23rd, 24th, 25th, 27th, 28th; Eastern Gulf States, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 28th; Western Gulf States, 15th, 16th, 17th, 18th, 19th, 21st, 22nd, 23rd, 24th, 26th, 28th, 29th; Lower Lake region, 17th, 19th, 21st, 24th, 25th, 27th, 28th, 29th, 31st; Upper Lake region, 5th, 16th, 17th, 24th, 25th, 26th, 27th, 28th, 29th; Ohio valley and Tennessee, 1st, 2nd, 14th, 15th, 16th, 19th, 20th, 21st, 23rd to 29th; Upper Mississippi valley, 1st, 15th to 29th; Missouri valley, 2nd, 4th, 14th to 20th, 24th to 31st; Eastern Rocky Mountain slope, 1st, 2nd, 14th, 17th, 18th, 23rd, 25th, 27th, 28th; Rocky Mountains, 15th, 20th, 21st, 23rd, 24th, 29th; Western Plateau, 17th, 18th, 21st, 23rd, 24th, 26th, 27th; California, 2nd, 4th, 19th, 22nd, 24th, 25th, 26th.

Lunar Halos were observed in the various districts on the following dates: New England, 5th, 13th, 15th, 17th, 25th, 26th, 27th, 30th; Middle Atlantic States, 5th, 15th, 16th, 17th, 21st, 23rd, 25th, 26th, 30th; South Atlantic States, 20th, 21st, 23rd; Eastern Gulf States, 5th, 16th, 19th, 20th, 22nd, 23rd; Western Gulf States, 9th, 19th, 29th; Lower Lake region, 6th, 8th, 9th, 10th, 11th, 19th, 20th, 25th; Upper Lake region, 13th, 16th, 18th, 24th, 26th, 28th; Ohio valley, 1st, 14th, 24th, 25th, 26th, 28th, 29th; Upper Mississippi valley, 10th, 11th, 14th, 15th, 17th, 19th, 23rd, 24th, 25th, 26th, 28th, 30th, 31st; Missouri valley, 5th, 11th, 16th, 19th, 20th, 23rd, 24th, 25th, 26th, 27th, 28th; Rocky Mountains, 7th, 15th, 18th, 27th, 28th, 29th; California, 9th, 11th, 24th, 29th.

Mirage.—Olivet, Dak., 30th; Genoa, Neb., 17th, 18th, 22nd, 23rd, 24th, 30th, 31st; Pembina, Dak., 20th, 23rd, 24th.

MISCELLANEOUS PHENOMENA.

Sunsets.—The characteristics of the sky at sunset, as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal Service Stations. Reports from 137 stations show 4,183 observations to have been made, of which 35 were reported doubtful; of the remainder, 3,486, or 84.0 per cent., were followed by the expected weather.

Meteors.—Wabash, Ind., 19th, between 5 and 6 a. m., "a large meteor passed over the city making the